

- 161 Involvement of Wnt Pathway during Colonic Carcinogenesis Induced by Irradiation  
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Radiotherapy for malignant pelvic disease is followed by treatment-induced proctitis, and rarely colorectal cancers. Translocation of beta-catenin protein, which is a key downstream effector of Wnt pathway, is often found in colorectal cancer. Mutations in either APC or beta-catenin genes in colorectal cancer result in up-regulation of protein expression, and cytoplasmic and nuclear distribution of beta-catenin. This study aimed to evaluate the involvement of Wnt pathway in colorectal carcinogenesis induced by irradiation. We immunohistochemically analyzed the profile of beta-catenin, APC, and cyclin D1 expression in both human and rat colorectal cancer and colitis induced by irradiation in comparison with sporadic cases. Translocation of beta-catenin expression was observed in irradiation-induced colorectal cancers. Cytoplasmic beta-catenin expression was also found in non-neoplastic irradiated mucosa in both human and rat. In rat, the translocation of beta-catenin expression into nucleus was associated with loss of APC expression and overexpression of cyclin D1 in cancers. Translocation of beta-catenin expression was found in irradiated-colonic mucosa as well as colon cancer, suggesting that abnormality of beta-catenin expression might be one of the early events for irradiation-induced tumorigenesis.

- 162 Expression of Wnt Signaling Pathway in Thyroid Cancers from Residents living around Semipalatinsk Nuclear Test Site  
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Four-hundred and fifty-nine nuclear explosions were conducted by the USSR until 1989 at the Semipalatinsk nuclear testing site (STNS), Kazakhstan, including 87 atmospheric. Several hundred thousand people living in the East Kazakhstan region were exposed to radioactive fallout. Radiation exposure to the thyroid gland is a risk factor to increase the incidence of cancer. beta-catenin plays a dual role in the cell: one in cell-cell adhesion and an additional role in signaling on Wnt pathway. Elevated beta-catenin level in tumor cells, which could be caused by truncated adenomatous polyposis coli protein (APC), results in the increased transcriptional activation of target genes. One of them is Cyclin D1 which regulates the progression of cell into the proliferative phase during the cell cycle. In the present study, we performed immunohistochemistry with 53 thyroid tumors and 10 thyroiditis from STNS to examine the expression of beta-catenin, APC and Cyclin D1. The translocation of beta-catenin expression was mainly found in papillary carcinoma, and significantly associated with both overexpression of Cyclin D1 and loss of APC expression in nuclei, suggesting beta-catenin abnormality in thyroid tumorigenesis from STNS.

- 163 Cloning of a mouse novel gene, *MA141-36*, and its human homologue overexpressed in hepatocellular carcinomas  
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We identified a mouse novel gene, *MA141-36*, and its human homologue, *HA141-36*, both of which were overexpressed in hepatocellular carcinomas (HCCs). *MA141-36* mRNA was expressed ubiquitously, but was much expressed in thymus, ovary and uterus. Moreover, *MA141-36* mRNA was abundantly expressed in mouse HCC cell lines with an ability of colony formation in soft agar. On the other hand *HA141-36* mRNA was much expressed in testis, but was little expressed in other tissues. We found HA141-36 as a nuclear protein of 83kDa by Western blot analysis. In conclusion, the overexpression of MA141-36 or HA141-36 might be associated with hepatocarcinogenesis.